

**2014 AAAAI Annual Meeting**  
**Symposia 3303**

Update of the Allergic Contact Dermatitis Practice Parameter:  
What's New in 2014?

# **What are the Most Common Chemical Sensitizers at Home and in the Workplace?**

**Luz Fonacier MD, FAAAAI, FAAAAI**  
**Section Head of Allergy**  
**Program Director, Allergy and Immunology**  
**Winthrop University Hospital**  
**Professor of Clinical Medicine**  
**SUNY at Stony Brook**

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**10:45 AM-12:00 PM**



# Disclosure

- Research and Educational Grants
  - Baxter
  - Genentech
  - Merck
- Speaker's Bureau
  - Baxter

# Objectives

- 1. Develop skills in clinical history and patch testing in suspected allergic contact dermatitis
- 2. Identify the most frequent contact sensitizers encountered at home and in the workplace
- 3. Discuss the relationship between metal hypersensitivity and prosthetic joint failure

# Dermatitis Contact Allergens of the Year

2013 : Methylisothiazolinone

Castanedo-Tardana. Dermatitis 2013, Vol 24, No 1

2012: Acrylates

Sasseville D. Dermatitis 2012, Vol. 23, No 1

2011: Dimethyl Fumarate

Bruze M, Zimerson E. Dermatitis 2011, Vol 22, No 1

2010: Neomycin

Sasseville D. Dermatitis 2010, Vol. 21, No 1

2009: Mixed Dialkyl Thioureas

Anderson B, Dermatitis 2009, Vol. 20, No. 1

2008: Nickel 2008

Komik R. Zug K Dermatitis 2008 Vol. 19, No. 1

2007: Fragrance

Storrs F. Dermatitis 2007 Vol.28, No. 1

2006: P-Phenylenediamine

DeLeo V. Dermatitis 2006 Vol. 17, No. 2

2005: Corticosteroids

Isaksson BM. Dermatitis 2005 Vol. 16, No. 1

2004: Cocoamidopropyl Betaine

Fowler J. Dermatitis 2004 Vol 15, No.1

2003: Bacitracin

Sood A, Taylor J. Dermatitis 2003 Vol 14, No. 1

2002: Thimerosal

Belsito D. Dermatitis 2002 Vol.13, No.1

2001: Gold

Fowler J Dermatitis 2001 Vol.12, No.1

2000: Disperse Blue Dyes

Storrs F Dermatitis 2000 Vol. 11, No. 1

# Most Common Sensitizers at Home

## SUMMARY STATEMENT:

If an eruption worsens, rather than improves, after the topical application of certain medications, or fails to respond to TCS, patch testing should be performed to the suspected product and/or ingredients known to be contact sensitizers.

- Medications
- Cosmetics

## **Summary Statement: CD commonly develops after exposure to topical medications, including:**

- **Corticosteroid**
- **Lanolin**
- **Para-aminobenzoic acid (in sunscreens)**
- **Neomycin sulfate**
- **Bacitracin**
- **Caine mix (benzocaine, tetracaine, dibucaine)**
  - **Anti-itch preparations**
  - **Patients sensitive to benzocaine can use lidocaine & carbocaine**
- **Thimerosal**
  - **Preservative of topical medication, cosmetics, vaccines, contact lens sol**
- **Iodochlorhydroxyquin**
- **(Quinolone Mix)**



# **Neomycin**

## **Contact Allergen of 2010**

- **Second most common allergen in NA**
- **Cross react with paromomycin, butirosin, framycetin, tobramycin, kanamycin, gentamicin**
- **Concomitant sensitizations: bacitracin**
- **Risk: stasis dermatitis, leg ulcers, anogenital dermatitis & otitis externa**
- **Committee on Infectious Diseases of the AAP no longer considers contact hypersensitivity to neomycin a contraindication to vaccination**

# **Corticosteroids**

## **Contact Allergen of 2005**

- **Affects 0.5%-5.8% of suspected of ACD**
- **Increased risk/suspect:**
  - **Chronic venous leg ulcers/ stasis dermatitis**
  - **Contact dermatitis**
  - **When dermatitis fails to respond to CS**
  - **When dermatitis worsens with treatment**
- **PT complicated by anti-inflammatory nature**
  - **Read also at 7-10 days (~ 30% would be missed)**
  - **PT to CS, patient's product, vehicle and preservatives in preparations**
- **Tixocortol, Budesonide, Hydrocortizone-17-butyrate in TT**



# STRUCTURAL GROUPS OF CORTICOSTEROIDS

Cross reactivity based on 2 immune recognition sites-  
C 6/9 & C16/17 substitutions

**Class A** (Hydrocortisone & Tixocortol pivalate: has C17 or C21 short chain ester)

Hydrocortisone, -acetate, Tixocortol, Prednisone, Prednisolone, -acetate, Cloprednol, Cortisone, -acetate, Fludrocortisone, Methylprednisolone-acetate

**Class B** (Acetonides: has C16 C17 cis-ketal or –diol additions)

Triamcinolone acetonide, -alcohol, Budesonide, Desonide, Fluocinonide, Fluocinolone acetonide, Amcinonide, Halcinonide

**Class C** (non-esterified Betamethasone; C16 methyl group)

Betamethasone sodium phosphate, Dexamethasone, Dexamethasone sodium phosphate, Fluocortolone

**Class D1** (C16 methyl group & halogenated B ring)

Clobetasone 17-butyrate, -17-propionate Betamethasone-valerate, -dipropionate, Aclometasone dipropionate, Fluocortone caproate, -pivalate, mometasone furoate

**Class D2** (labile esters w/o C16 methyl nor B ring halogen substitution)

Hydrocortisone 17-butyrate, -17-valerate, -17-aceponate, -17-buteprate, methylprednisolone aceponate

# Lanolin (Wool wax alcohols)

- **Base of many topical medications (TCS), moisturizer, creams, cosmetics**
- **Complex mixture therefore test actual lanolin used**
- **Lanolin Paradox: sensitivity low in normal skin, moderate in atopic, high in stasis eczema & ulcers**

**SUMMARY STATEMENT : When evaluating ACD from cosmetics and personal care products which contain considerable numbers of chemical ingredients, consider that the most common causes are due to a few important chemical classes including fragrances, preservatives, excipients, nickel and sun blocks**

<b>Top 10 (+) reactions to NACG Allergens</b>	<b>NACD 2009-10</b>	<b>TT</b>
<b>Nickel Sulfate (Metal)</b>	<b>15.5</b>	<b>x</b>
<b>Neomycin (Antibiotic)</b>	<b>8.7</b>	<b>x</b>
<b>Fragrance Mix I (Fragrance)</b>	<b>8.5</b>	<b>x</b>
<b>Bacitracin (Antibiotic)</b>	<b>8.3</b>	<b>x</b>
<b>Balsam of Peru (Fragrance)</b>	<b>7.2</b>	<b>x</b>
<b>Cobalt Chloride (Metal)</b>	<b>6.2</b>	<b>x</b>
<b>Quarternium 15 (Preservative)</b>	<b>5.8</b>	<b>x</b>
<b>Formaldehyde (Preservative)</b>	<b>5.8</b>	<b>x</b>
<b>PPD</b>	<b>5.5</b>	<b>x</b>
<b>Fragrance Mix II (Fragrance)</b>	<b>4.7</b>	

# Fragrance

<b>Fragrance Mix I</b>	<b>Balsam of Peru <i>Myroxylon pereirae</i></b>	<b>Fragrance Mix II</b>
<b>Cinnamic alcohol 1%</b>	<b>Cinnamic acid</b>	<b>Coumarin 2.5%</b>
<b>Cinnamic aldehyde 1%</b>	<b>Benzoyl Cinnamate</b>	<b>Hydroxyisohexyl 3-cyclohexene carboxaldehyde (Lyr al) 2.5%</b>
<b><math>\alpha</math>-Amyl cinnamaldehyde (amyl cinnamal) 1%</b>	<b>Benzoyl Benzoate</b>	<b>Citronellol 0.5%</b>
<b>Hydroxycitronellal 1%</b>	<b>Benzoic acid</b>	<b>Farnesol 2.5%</b>
<b>Geraniol 1%</b>	<b>Vanillin</b>	<b>Citral 1.0%</b>
<b>Isoeugenol 1%</b>	<b>Nerodilol</b>	<b><math>\alpha</math> Hexyl cinnamic aldehyde 5.0%</b>
<b>Eugenol 1%</b>		
<b>Oak moss 1%</b>		

Other fragrance sensitizers: Lyr al, jasmine, lavender, sandalwood, tea tree oil , ylang ylang oil, lemongrass oil, jasmine, Narcissus

Fragrance mix I & Balsam of Peru (in TT) pick up 60-70%  
of all ACD to fragrances at best

# Fragrance Mix Patch Test

- Low specificity
  - Mild Irritant, caution with weak (+) reactions
- Increased probability of a relevant FM patch-test
  - Increased strength of test reaction
  - Repeated (+) reaction on retest
  - (+) to one of its ingredients

# Preservatives

## FDA Voluntary Cosmetic Registration Program Database

- ~ one in six stay-on cosmetics & one in four rinse-off products contain a formaldehyde releaser
  - frequency
    - Imidazolidinyl urea : 7%
    - DMDM hydantoin : 5.4%
    - Diazolidinyl urea : 4.5%
    - quaternium-15: 1.4%

# Cosmetic Preservatives

<b>Formaldehyde</b>	<b>(+) PT*</b>	<b>Non Formaldehyde</b>	<b>(+) PT</b>
<b>Formaldehyde</b>	<b>5.8 %</b>	<b>Iodopropynylbutylcarbamate</b>	<b>4.3%</b>
<b>Quarternium 15</b>	<b>5.8%</b>	<b>Methyldibromoglutaronitrile (Euxyl K 400)</b>	<b>3.8 %</b>
<b>Diazolidinyl urea (Germall II)</b>	<b>2.2 %</b>	<b>MCI/MI</b>	<b>2.5 %</b>
<b>Imidazolidinyl urea (Germall)</b>	<b>2.2 %</b>	<b>Parabens</b>	<b>0.8 %</b>
<b>Bromonitropropane (Bronopol)</b>	<b>1.0 %</b>	<b>Chloroxylenol</b>	<b>0.5 %</b>
<b>DMDM Hydantoin (Glydant)</b>	<b>1.0 %</b>		

Paraben, quarternium-15 & formaldehyde preservatives are frequently combined & cosensitize \*\*

\* % Prevalence PT reaction based on NACDG 2009-2010

\*\*Albert MR et al. Concomitant positive reactions to allergens in the patch testing standard from 1988-1997. Am J Contact Dermat 1999. 10:219-223  
 Warshaw EM et al. North American Contact Dermatitis Group Patch Test Results for 2009-2010. DERMATITIS, March/April 2013. Vol 24: 2;50-59

# Formaldehyde

Most common potential source of exposure

- Cosmetics
  - Rarely on ingredient label, direct use forbidden in some countries
  - Contain formaldehyde releasers
- Permanent press textiles
  - Increase strength, prevent shrinking, resist wrinkling (permanent press) of cellulose and rayon fibers



## **Formaldehyde Resins**

- **Dermatitis pattern in areas where clothing fit tightly**
  - **Posterior neck, upper back, lateral thorax, anterior & posterior axillary folds (sparing axillary vault), waistband (sparing undergarment areas), flexor**
- **Importance of pressure, friction, heat, perspiration**

# Treatment for Formaldehyde Resin Allergic Contact Dermatitis

- Use 100% silk, polyester, acrylic, nylon
  - Linen & denim if soft & wrinkle easily
- Avoid “easy care,” “permanent press,” or “wrinkle free”
- Some also recommend avoidance of formaldehyde-releasing preservatives in personal products\*
- AVOID FORMALDEHYDE RESINS AT ALL TIMES.  
Occasional exposure to “Dress clothes” on weekends is enough to maintain dermatitis

Reich H & Warshaw E. Allergic Contact Dermatitis from Formaldehyde Textile Resins . Dermatitis. 2010. 21;2:65–76

\*Scheman A, Jacob S, Zirwas M, et al. Contact allergy: alternatives for the 2007 North American Contact Dermatitis Group (NACDG) standard screening tray. Dis Mon 2008;54:7–156.

# Methylisothiazolinone Contact Allergen of 2013

- **Preservative in cosmetics and toiletries**

US FDA Voluntary Cosmetic Ingredient Registration Program:

MI (singly or MCI/MI) was used in 1125 cosmetic products in the US in 2007

- 24% (n = 275) were shampoos
- 18% (n = 206) were conditioners
- 10% (n = 117) were baby soaps and detergent

- **Occupational sources of MI:** paints, inks, glues, lacquers, varnishes, cutting oils

- painters constitute nearly half of occupational ACD to MI alone \*

- **Household products** with MI: dishwashing liquid, soaps, laundry detergents, stain removers, fabric softeners; all purpose, glass & wood cleansers

- Tested with methylchloroisothiazolinone (MCI/MI) mix

- MCI/MI trade names: Kathon CG
- Mix misses ~ 40% of allergy to MI, (low concentration of MI in mix)

**SUMMARY STATEMENT 44: Suspect the diagnosis of photodermatitis to cosmetics when eczema occurs in a light-exposed distribution following the use of a skin care product or cosmetic, including sunscreens . In these cases, photopatch testing must be performed.**

- Involves
  - sun-exposed areas
  - Face
  - “V” of neck
  - dorsal hands and forearms
- Spares
  - Upper eyelids
  - Upper lip
  - Submental
  - Post auricular areas

# Sunscreens

**TABLE 2 LEVEL OF PROTECTION FROM DIFFERENT INGREDIENTS**

		Sunburn	Increasing risk of melanoma		
Common UV absorbers	Type	UVB	UVAII	UVA I	
Octyl methoxycinnamate	Chemical				
Homosalate	Chemical				
Padimate O	Chemical				
Octyl salicylate	Chemical				
2-Phenyl-benzimidazole-5-sulfonic acid	Chemical				
Oxybenzone “(benzophenone-3)”	Chemical				
Menthyl anthranilate	Chemical				
Octocrylene	Chemical				
Avobenzone	Chemical				
Nanosun™ Zinc Oxide	Mineral				
Level of Protection		None	Moderate	Good	Excellent

**Chemical absorbers**  
**UVB (290–320 nm)**  
**UVA II (321–340 nm)**  
**UVA I (341–400 nm)**

**Physical blockers**  
**Titanium Dioxide**  
**Zinc Oxide**

# What does SPF stand for?

**Sun Protection Factor (Measure UVB protection )**

- **Range from 2-80**
- **UV radiation it takes to burn skin with sunscreen compared to burn bare skin. (i.e. SPF 30 take 30 x amount of UVB to cause sunburn)**
  - **Nothing to do with amount of time you can spend in the sun**
  - **Varies with every individual**
- **SPF 15 blocks ~95 % UVB rays**
  - **SPF 30 blocks ~97 %**
  - **SPF 50 blocks ~98%**
  - **SPF 100 blocks ~99%**
  - **none offers 100% protection**
  - **Bottom line:** Your daily sunscreen should be somewhere between SPF 30 and 50

# Contact Dermatitis to Sunscreen

## Allergic and Photo allergic

- Chemical Sun blocks: most common cause of ACD

PABA, Benzophenone, Cinnamate

- Physical UV Blocker

Titanium dioxide & zinc oxide: no report of CD  
or photo allergy

# Sun Protection should include sunscreens sun-protective clothing PLUS cautious sun avoidance



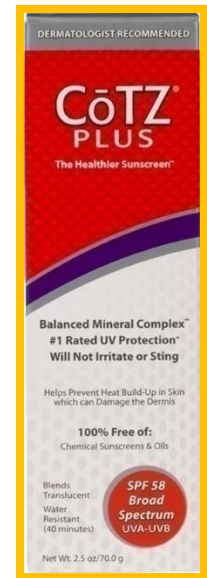
Octinoxate 7.5%  
Octocrylene 2%  
Oxybenzone 3%  
Zinc Oxide 6%



Titanium: 5%  
Zinc Oxide:10%



Zinc Oxide:18.6%



Titanium:10%  
Zinc Oxide:3%



# Nickel: Contact Allergen of 2008

- **10% of population are nickel allergic**
- **Increasing sensitization in North America**
  - **New sources of nickel ACD: cell phones**

## “Does sensitization begin in infancy?”

- Nickel: most common (+) allergen in asymptomatic children

- 12.9% of children (6- 67.5 mos ) were (+) to nickel

### Risk factors for development of nickel allergy

- Body piercing (most important)
  - Sensitization in pierced ears (14.8%) vs. unpierced (1.8%)
- Number of piercings
  - 4% (+) PT in unpierced males
  - 11.1% with 1 piercing
  - 14.6% with multiple piercings\*

### Lessons from this well-documented epidemiology of nickel sensitization

Kütting et al recommend to delay ear piercing until after 10 y.o. (presumably to allow for development of immune tolerance)

Bruckner AL, Weston WL, Morelli JG. Does sensitization to contact allergens begin in infancy? Pediatrics 2000;105:e3

Kütting B, Brehler R, Traupe H. Allergic contact dermatitis in children: strategies of prevention and risk management Eur J Dermatol 2004;14:80–5 Kütting B,

Brehler R, Traupe H. Allergic contact dermatitis in children: strategies of prevention and risk management Eur J Dermatol 2004;14:80–5

\*Erlach A, Kucenic M, Belsito D. Role of body piercing in the induction of metal allergies. Am J Contact Dermat 2001;12:151–155

**TABLE 3. Body Sites of Dermatitis and Final Diagnoses**

Characteristic	Primary, n (%)	Total of Up to 3 Listed,† n (%)
Dermatitis site	n = 4300*	n = 4308
Scattered/generalized	907 (21.1)	1101 (25.6)
Hand	866 (20.1)	1031 (24.9)
Face	667 (15.5)	926 (21.5)
Eyelids	392 (9.1)	466 (10.8)
Trunk	250 (5.8)	505 (11.7)
Leg	201 (4.7)	469 (10.9)
Arm	184 (4.3)	596 (13.8)
Scalp	150 (3.5)	236 (5.5)
Lips	138 (3.2)	181 (4.2)
Foot	110 (2.6)	263 (6.1)
Anal/Genital	106 (2.5)	134 (3.1)
Other	102 (2.4)	129 (3.0)
Neck	72 (1.7)	366 (8.5)
Most Exposed Areas	62 (1.4)	76 (1.8)
Ears	47 (1.1)	76 (1.8)
Eyes	24 (0.6)	36 (0.8)
Only under clothes	17 (0.4)	27 (0.6)
Nose	3 (0.1)	3 (0.1)
Erythroderma	2 (0.1)	3 (0.1)

\*Excludes 8 with no primary site listed.

†Total of any of up to 3 sites or up to 3 diagnoses listed.

‡Excludes 23 patients with no primary final diagnosis.

# Dermatitis with Scattered Generalized Distribution

## Nickel

**Estimated SCD following oral nickel in nickel allergic patients**

- **1% to 0.3 - 0.6 mg/d (normal diet)**
- **10% to 0.55 - 0.89 mg of nickel**
- **~ 50% to 2.5 mg nickel**

**Approximate nickel content of foods**

- Soybean, ~ 1 cup: 895mcg
- Figs ~5: 85 mcg
- Cocoa, 1 tbsp: 147 mcg
- Lentils ½ cup cooked: 61 mcg
- Cashew, ~ 18 nuts: 143 mcg
- Raspberry: 56 mcg
- Vegetables, canned ½ cup: 40 mcg
- Lobster 3 oz: 30 mcg
- Oat Flakes 2/3 cup: 25 mcg
- Peas Frozen, ½ cup: 27 mcg

## Balsam of Peru

**~ half of patients with (+) PT to MP who followed a low BOP diet had their dermatitis improve**

**Foods to Avoid in Balsam-Restricted Diet**

- **Citrus** fruits: oranges, lemons
- Flavorings: pastries, bakery goods
- **Spices**: cinnamon, cloves, vanilla, curry, allspice, anise, ginger
- Spicy condiments: ketchup, chili
- Perfumed or flavored tea & tobacco
- Chocolate
- Ice cream
- Cola, spiced soft drinks
- **Tomatoes**

## **Most Common Sensitizers in the Workplace**

- **Irritant Contact Dermatitis: ~ 80% of occupational CD**
  - wet work
  - solvents and alcohols
  - cutting oils, coolants
  - degreasers, soaps, detergents
  - other cleaning agents and disinfectants.
- **Allergic Contact Dermatitis**
  - Metals
  - rubber-related materials
  - epoxies, resins and acrylics
  - organic dyes, plants, foods
  - medications, biocides , germicides

# Food Processing Workers

- **Most common sites:**
  - **Hands: 36.7%**
    - “wet work” (frequent hand washing)
    - Food handling: acidic (citrus) or abrasive (nuts, grains)
      - Common food: garlic & onions
  - **Scattered or generalized sites: 20.2%**
  - **Arms: 17.4%**
  - **Face: 9.2%**
  - **Lips: 6.4%**
  - **Anal & genital areas: 4.6%**

# Hairdressers and Cosmetologists

## Most Common Allergens

- glyceryl thioglycolate in permanent wave solutions,
- p-phenylenediamine in hair dyes
- nickel sulfate
- 2-hydroxyethyl methacrylate
- quaternium-15

**SUMMARY STATEMENT: Patients suspected to have allergy to hair products should be evaluated for PT reactions to**

- Cocamidopropyl betaine
- Paraphenylenediamine
- glycerol thioglycolate

# **Cocoamidopropyl betaine**

## **Contract Allergen of 2004**

- **Amphoteric surfactant in shampoos, bath products, eye & facial cleaners, liquid detergents, surface cleaners, pet care products, other skin and hair care, liquid shower gels, roll-on deodorants, facial cleansers**
- **Second most common allergen in shampoo**
- **Less irritating but more sensitizing than older polar surfactants (sodium lauryl sulfate)**
- **Positive reactions to this allergen are often clinically relevant**



# **P-phenylenediamine (PPD)**

## **Contact Allergen of 2006**

- **Permanent Hair Dye**
- **New Route of Exposure: Body painting & temporary tattooing**
- **Clinical course**
  - (1) **acute intense eczematous response within 1-2 days of tattooing**
  - (2) **subacute response: lichenoid eruptions within 1- 2 week**
    - **Most likely causative agent is PPD**
- **PPD sensitization is likely lifelong; may react to first attempts at hair coloring**

## Types of Hair Dye

- Semi permanent: 2/4 weeks
- Demi-permanent: 6/8 weeks
  - Ammonia-free (cannot lighten hair)
- Permanent: ..forever

## PPD-Free Hair Dyes

**Wella Koleston Perfect** (permanent) \*

**Wella Color Charm** (demipermanent)

**Schwarzkopf Igora Royal** (permanent) \*\*

**Goldwell Color Chic** (permanent) \*\*\*

**Goldwell ReShade for Men** (demipermanent)

**Sanotint Light** (demipermanent) \*\*\*\*

**L'Ore´ al Paris Excellence To-Go 10-Min. Cre`me Colorant** (demipermanent) \*\*\*\*\*

## **Glycerol thioglycolate Occupational Exposure**

- Thioglycolates may remain allergenic in hair long after it has been rinsed out
- Allergic individuals may continue to have skin eruptions weeks after application of the perm
- Allergic hairdressers may be unable to cut or shape permanent waved hair

# Acrylates

## Contact Allergen of 2012

- Adhesives, paint, printing ink, solvents
- Soft contact lenses
- Artificial nails
  - fingertip dermatitis & paresthesia
  - periungual & eyelid dermatitis
- Bone cement, orthopedic implants
- Dental composite resin, dentures
  - painful, burning stomatitis
- Bone cements
- Hearing aid resins

# **Acrylates**

## **Contact Allergen of 2012**

- **Ethyl acrylate & methyl methacrylate are not in the TT but are in the NACD 2007 standard screen**
- **Methyl methacrylate can penetrate vinyl or latex gloves in as little as 60 seconds**
  - **Best protection : polyethylene/ethylene vinyl (inelastic & expensive)**
  - **Double gloving with nitrile or polyethylene gloves under nitrile may protect for 30 min to a few hours**

**SUMMARY STATEMENT: Suspect allergy to nail products when the dermatitis present locally at the distal digit or ectopically on the eyelids and face.**

- ~ 80% appear on the neck, face, lips, eyelids
  - 27% in periungual region of hands/feet
  - unusually: gluteal, perianal, genital
- Most ACD to nail polish & artificial nail products are to **Tosylamide/formaldehyde resin**
  - nail polish enamel
  - nail hardeners
  - setting lacquers
- Most react to water-soluble monomers & dimers of tosylamide/ formaldehyde resin in dry polish
  - some react only to wet polish
- Alternative: alkyl polyester resin

# Health professionals hand dermatitis

- **IgE-mediated contact urticaria**
- **Irritant CD**
- **Allergic CD**
  - **rubber accelerants in gloves**
  - **bisphenol A in vinyl gloves**
- **Study of 3,448 patients (1,058 healthcare workers) suspected of OD/glove allergy**
  - **13% were sensitized to thiurams**
  - **3.5% to dithiocarbamates**
  - **3% to mercaptobenzothiazole and/or derivatives**
  - **0.4% to thioureas**
  - **3% to 1,3-diphenylguanidine**

# Rubber

- Mercaptobenzothiazole (MBT)\*
- Thiuram mix\*
- Black rubber mix\*
- Carba mix\*
- Mercapto mix\*

**Most rubber-sensitive individuals are positive to several antigens**

**Cross sensitization between carbamates & thiuram**

\*antigen in T.R.U.E. test



# Farmers

- **Allergic CD**
  - metals
  - disinfectants,
  - rubber
  - pesticides (most important allergens)
  - propolis (especially bee keepers)
- **Irritant CD lesions**
  - chemicals in fertilizers and pesticides

# Cleaners/housekeepers

- Allergic CD
  - Formaldehyde
  - Rubber additives (thiurams, zinc diethyldithiocarbamate and mercaptobenzothiazole )

# Military

- **Allergic CD**
  - plants and insects
  - formaldehyde resins
  - uniforms: disperse dyes & chromate-containing dyes
  - MSI/MI in coolants & cutting oils
  - metal allergy to embedded shrapnel
  - vaccines: phenoxyethanol, formaldehyde, neomycin, aluminum, thimerosal

# Gardeners, Landscapers, Maintenance Workers, Park and Wildlife Officials



- **Genus Toxicodendron, species Rhus (poison ivy, poison oak, poison sumac): most common causes of plant dermatitis in outdoor workers**
- ***Urushiol* : allergenic substance**
  - mixture of catechols and resorcinols
  - avidly binds to skin, but readily degraded by water
  - soak skin with cool water as soon as contact is suspected
  - non-leaf portions can also induce dermatitis, even in the winter
  - Urushiol in cashew nut trees, Japanese lacquer, Ginkgo biloba, mango
- **Linear vesicles & bullae**
  - Vesicle fluid is not antigenic
    - oleoresin can transfer in clothing, sports equipment, pet dander
- **Patch testing to Toxicodendron is contraindicated**
  - can cause sensitization and large bullous reactions

# Floral workers

- **Irritant CD: Calcium oxalate crystals in plant sap**
- **Allergic CD**
  - **Alstroemeria (Peruvian lily or Inca lily): most frequent cause of hand dermatitis**
- **Allergen: alpha-methylene-gamma-butyrolactone or tulipalin A**
  - **present in both flowers and bulbs**
  - **penetrates latex and vinyl gloves**
  - **Consider PT to fresh plants or flowers - but proceed with caution as severe bullous reactions may result from their high allergen content**

Guin JD, Franks H. Fingertip dermatitis in a retail florist. *Cutis; cutaneous medicine for the practitioner*. 2001 Apr;67(4):328-30.

Mascarenhas R, Robalo-Cordeiro M, Fernandes B, Oliveira HS, Goncalo M, Figueiredo A. Allergic and irritant occupational contact dermatitis from Alstroemeria. *Contact dermatitis*. 2001 Mar;44(3):196-7

# Topical Skin Care Product Databases

	<b>CAMP</b> <b>Contact Allergen Management</b> <b>Program</b> <b>(American Contact Dermatitis</b> <b>Society)</b>	<b>CARD</b> <b>Contact Allergen Replacement</b> <b>Database</b> <b>(MAYO Clinic)</b>
Web Address	<a href="http://www.contactderm.org">www.contactderm.org</a>	<a href="http://www.AllergyFreeSkin.com">www.AllergyFreeSkin.com</a>
Physician Cost	\$300/yr <i>per provider</i> <i>Requires ACDS Membership</i> <b>For reference, send CV:</b> Luz Fonacier, MD. Head of Allergy Winthrop University Hospital Professor of Clin Medicine, SUNY at Stony Brook Ifonacier@winthrop.org	\$200/yr <i>per practice</i> Complimentary 6 mo trial <i>No membership requirements</i>
Patient Cost	None	\$15 per year for customized list